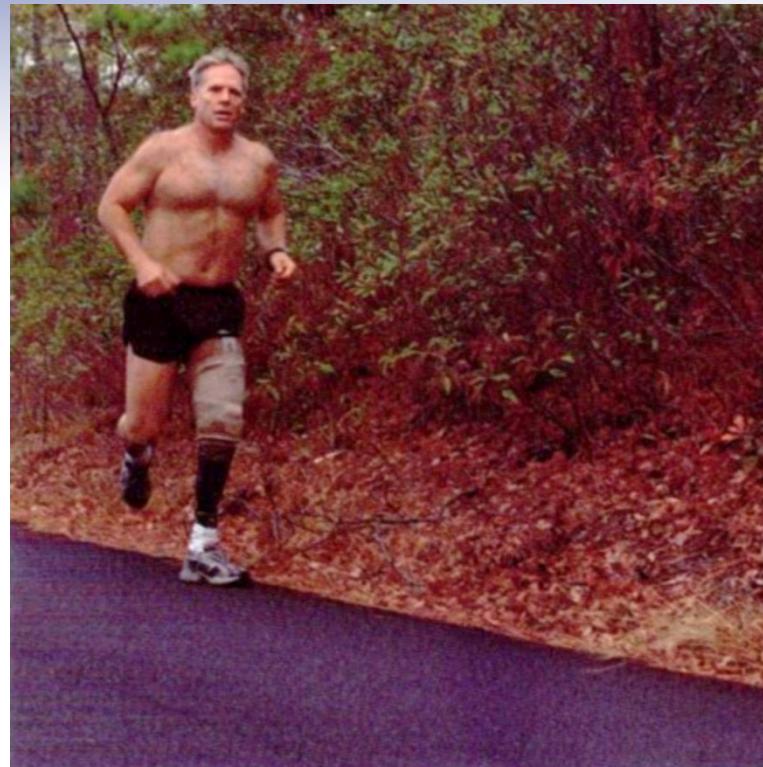


CHAMP

USU CONSORTIUM  
FOR HEALTH AND  
MILITARY PERFORMANCE



# High Mileage SOF Warriors

Deuster/Kemmer/Tubbs/Zeno



# Overview



- **Health concerns of aging**
- **Building blocks for life**
- **Protective foods and nutrients**
- **Functional foods and health**
- **Vitamin M and alternatives**
- **Eating a balanced diet**



# Arthritis & Musculoskeletal Injuries



- **One-third of U.S. veterans suffer from arthritis**
- **SOF are at high risk for developing musculoskeletal injuries due to the demands of physical training**
- **Joint pain can be minimized by choosing foods high in various nutrients**

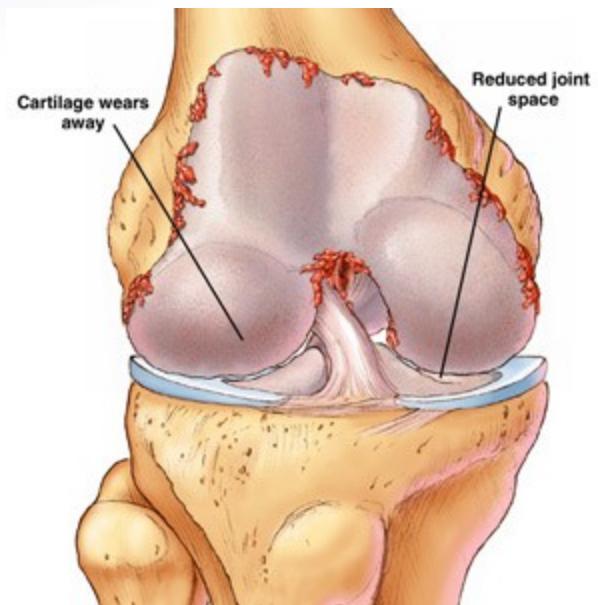


# CHAMP Osteoarthritis

USU CONSORTIUM  
FOR HEALTH AND  
MILITARY PERFORMANCE



- **Prevalent in active duty and retired military**
  - Excessive body weight is a major risk factor
  - Low-impact exercise may help reduce pain
- **Self care treatments include:**
  - Increasing intake of anti-inflammatory foods
  - Minimizing intake of caffeine, alcohol, sugar, and hydrogenated fats (margarine)



# Anti- inflammatory Foods

- **Green vegetables**
- **Carrots**
- **Avocados**
- **Pecans**
- **Seeds**
  - **Sesame**
  - **Flax**
  - **Pumpkin**



- **Oats**
- **Soy**
- **Brown rice**
- **Wheat**
- **Cold water fish**





# Weight Maintenance Issues



- **Food Quality**
- **Quality of Sleep**
- **Physical Activity**
- **Alcohol and “junk food”**
- **Weight cycling (Yo-Yo Dieting)**
  - **Binge eating and repeated dieting can cause health problems**





# High Blood Pressure



- **Most common “heart” condition among active duty personnel**
- **Recommended behaviors:**
  - **Maintaining a healthy weight**
  - **Daily physical activity**
  - **Eating a healthy diet**
  - **Avoiding foods high in sodium**
  - **Drinking alcohol in moderation**



**Normal blood pressure: < 120/80 mm Hg**

to Stop Hypertension:  
**DASH**

- **More fruits, vegetables, and low-fat dairy foods**
- **Fewer foods high in saturated fat, cholesterol, and total fat**
- **More whole grains, fish, poultry, and nuts**
- **Less red meat and sweets**
- **Eating foods rich in magnesium, potassium, and calcium**
- **Reducing sodium (salt) to 1,500 mg a day (about 2/3 teaspoon)**



- **Diabetes**
- **Cholesterol  
(HDL/LDL)**
- **High Blood Pressure**
- **Smoking/Tobacco  
Use**
- **Alcohol Consumption**
- **Family History of  
Heart Disease**





USU CONSORTIUM  
FOR HEALTH AND  
MILITARY PERFORMANCE

# Building Blocks for Life



## Healthy Eating Patterns

- Eat a variety of fruits & vegetables
- Eat whole grain pastas and rice
- Select low-fat products

## Desirable Lipid Profiles

- Limit use of saturated fats
- Avoid trans fats
- Replace saturated fats with fats from vegetables, fish, and nuts

## Healthy Body Weight

- Balance energy needs
- Engage in physical activity
- Avoid the “Apple Shape” body
- Maintain waist girth  $< 40”$

## Desirable Blood Pressure

- Limit use of salt
- Limit alcohol to  $< 2/day$
- Maintain body weight
- Follow DASH Diet

Deuster/Kemmer/Tubbs/Zeno



# Type II Diabetes & Cancer



## Type II Diabetes

- **Incidence**
  - expected to double in next 50 years
- **People with diabetes**
  - are 2x as likely to develop cardiovascular problems than those without diabetes
- **Closely related to obesity and physical inactivity**

## Cancer

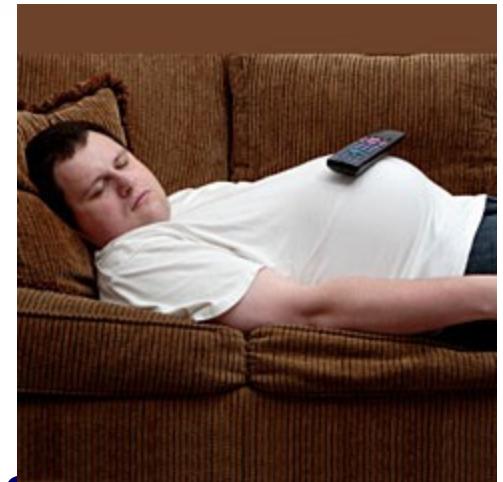
- **Contributing factors**
  - Genetics
  - Immune function
  - Environment
  - Lifestyle
- **Modifiable risk factors**
  - Alcohol consumption
  - Physical activity
  - Body weight
- **Factors that lower risk**
  - Mediterranean diet;
  - Foods high in fiber, fruits & vegetables
  - Moderate wine intake



# Metabolic Syndrome



- **Caused by**
  - Sedentary lifestyle
  - Stress
  - Poor dietary choices
  - “Syndrome X”
- **Central adiposity is present**
  - A male with a waist circumference  $\geq$  37 inches (94 cm) is considered at risk





# Metabolic Syndrome



- **At least 2 of the following factors must be present to diagnose**
  - Serum triglyceride levels  $\geq 150$  mg/dl or being treated for this lipid problem
  - Serum HDL cholesterol levels  $< 40$  mg/dl
  - Systolic blood pressure  $\geq 130$  or diastolic blood pressure  $\geq 85$  mmHg or being treated for high blood pressure
  - Fasting plasma glucose concentration  $\geq 100$  mg/dl or a diagnosis of type 2 diabetes

# Protective Foods and Nutrients



- **Soy**
- **Beans**
- **Salmon**
- **Avocado**
- **Garlic**
- **Spinach**
- **Walnuts, Cashews, Almonds**
- **Dark or Bittersweet Chocolate**
- **Tea**



- **Soluble fiber**
- **Omega-3 fatty acids**
- **Vitamin B6**
- **Vitamin B12**
- **Folate**
- **Vitami**





# “Functional Foods” and Health



## Functional Food Classes

- **Carotenoids**
- **Fiber**
- **Flavonoids**
- **Isocyothionates**
- **Minerals**
- **Phenolic Acids**
- **Prebiotics/Probiotics**
- **Phytoestrogens**
- **Plant Sterols**
- **Carbohydrates**
- **Vitamins**

## Beneficial Functions

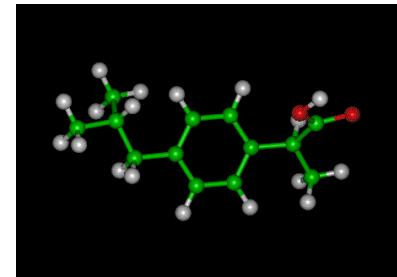
- **Restore fluid balance**
- **Improve endurance**
- **Enhance muscle strength**
- **Prevent muscle/joint injuries or fatigue**
- **Enhance immune function**
- **Prevent heart disease & diabetes**
- **Prevent high blood pressure**
- **Reduce pain/inflammation**



# Vitamin M (Ibuprofin)



- **Non-steroidal anti-inflammatory drugs (NSAID) used to relieve pain, fever and inflammation**
  - Some SOF warriors take up to 2 grams/day
- **Dependence risks**
  - GI distress, raised liver enzymes, salt/fluid retention, and hypertension
  - Increased risk of myocardial infarction



- **Glucosamine**
- **Chondroitin**
- **Vitamin E**
- **Selenium**
- **Omega-3 Fatty Acids**
- **Capsaicin Cream (from chili pepper)**
- **Bioquercitin**
- **Methylsulfonylmethane or MSM**

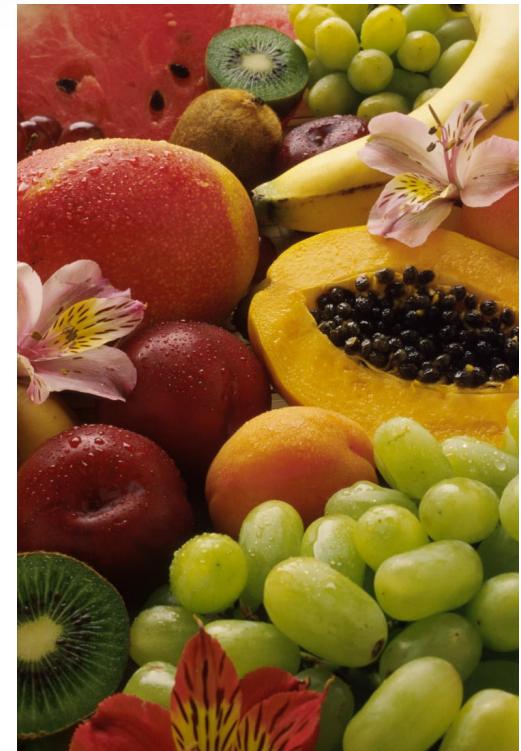




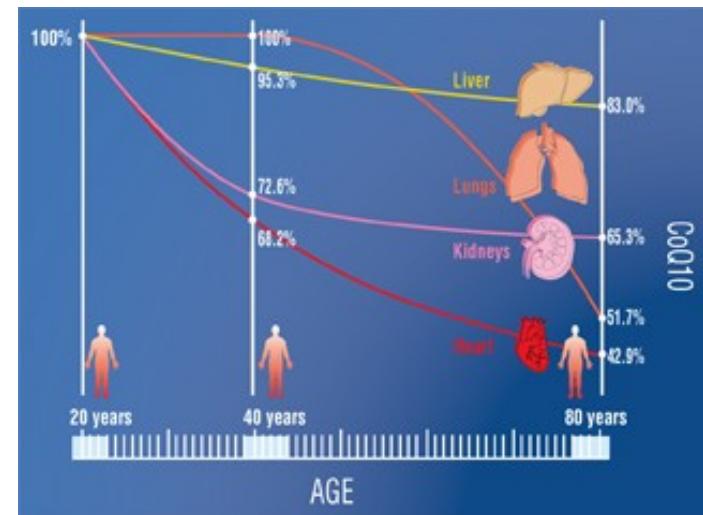
# Antioxidants



- **Neutralize free radicals produced by strenuous exercise, pollutants, chemicals, UV-radiation, and extreme environments**
- **> 4,000 compounds in foods act as antioxidants (“Functional Foods”)**
- **Most well known antioxidants are: Vitamins C and E, beta carotene and the mineral, selenium**



- Vitamin-like substance essential for producing energy
- CoQ10 levels decrease with age and low in some chronic diseases
- Often given with statins, which inhibit body's ability to make CoQ10
- Sold as a dietary supplement
- Primarily found in fish and meat





# A Well Balanced Diet



- **A well balanced diet of fruits, grains, & vegetables provides the best sources of antioxidants & other nutrients**
- **Many studies have shown that people who eat a well balanced diet are less at risk for developing many chronic diseases**
- **Recommend to eat at least 4 servings of fruit & 5 servings of vegetables daily**



# Key Points



- **Maintaining weight is important; minimize weight cycling**
- **Healthy foods & foods high in anti-inflammatory compounds can minimize pain from arthritis**
- **NSAIDs should be used on a limited basis**
- **Foods, not supplements, should be the primary source of nutrients**
- **Certain foods can limit the risk of developing hypertension, coronary heart disease, diabetes, and cancer**